

# REPORT ON A COLLECTION OF DIPTEROUS INSECTS FROM PUERTO RICO.

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During the months of January and February, 1899, Mr. August Busck, of the U. S. Department of Agriculture, through the courtesy of the U. S. Fish Commission, visited various portions of Puerto Rico, and among other things collected quite a large series of dipterous insects, which were later deposited in the U. S. National Museum. This series comprises 864 specimens, representing 117 species, distributed in 79 genera and 31 families. Three of the genera and sixteen of the species appear to be new to science, and are duly characterized in the following pages. Fifty-one of the species, nearly one-half of the whole number, also occur in the United States proper, several of them ranging as far northward as the State of New Hampshire. Twenty of the others have not as yet been reported as occurring outside of Puerto Rico, while the remaining forty-six species have also been obtained in some other island of the West Indies or in Central or South America.

Only a very few species of Diptera were described from Puerto Rico by the older authors, and it was not until the year 1885 that any considerable number of species were reported from that island. In that year Herr Victor von Roeder, of Hoym, Germany, published a list, with descriptions of new forms, of a series of these insects collected by Consul Krug.<sup>1</sup> This list numbers 111 species, of which 76 are different from those obtained by Mr. Busck; adding these to the 117 species obtained by the latter gives a total of 193 species now known to occur in Puerto Rico.

The report in detail is as follows:

## Family CECIDOMYIIDÆ.

### DIPLOSIS COCCIDARUM Cockerell.

Twenty specimens bred from larvæ associated with *Dactylopius citri*, and nine specimens bred from *Lecanium hemisphaericum*; also a single specimen captured at Mayaguez in January. This species was origi-

<sup>1</sup>Entomologische Zeitung zu Stettin, 1885, pp. 337-349. Republished, with notes, by Señor Juan Gundlach in the Anales de la Sociedad Espanola de Historia Natural, 1887, pp. 177-199.

nally described from specimens bred from larvæ associated with various Coccids and Aleurodes at Kingston, Jamaica. The Puerto Rican specimens do not differ appreciably from a series of six specimens from the former locality received from Professor Cockerell and by him bred from larvæ associated with *Pulvinaria urbicola*.

Family CULICIDÆ.

CULEX PERTURBANS Walker.

Two specimens captured at Bayamon in January. This species also occurs in this country, extending from Maryland southward to Florida and Texas.

Family CHIRONOMIDÆ.

CHIRONOMUS REDUENS Walker.

A single specimen captured at Aguadilla in January. This species is also known to occur in Mississippi.

CERATOPOGON SEQUAX Williston.

Seventeen specimens captured in January at Utuado, Aguadilla, Bayamon, and Mayaguez. It was originally described from St. Vincent, West Indies.

CERATOPOGON PUNCTIPENNIS Williston.

A single specimen from Aguadilla in January. This species was also originally described from St. Vincent.

Family BIBIONIDÆ.

SCATOPSE PYGMÆA Loew.

Two specimens captured at Mayaguez in January. The species was originally described from the District of Columbia, but has also been reported from St. Vincent, West Indies.

Family TIPULIDÆ.

GERANOMYIA RUFESCENS Loew.

A single specimen collected at Aguadilla in January. Originally described from Puerto Rico.

ATARBA PLEURALIS Williston.

A single specimen captured at Aguadilla in January. The type locality of this species is St. Vincent, West Indies.

Family STRATIOMYIIDÆ.

HERMETIA ILLUCENS Linnæus.

Two specimens collected at Utuado and Aguadilla in January. The species has a wide distribution, extending from the southern portion of the United States, through Mexico, Central America, and the West Indies, into South America at least as far as Brazil.

## ODONTOMYIA DORSALIS Fabricius.

A single specimen from Fajardo in February. It has previously been reported from Santo Domingo, West Indies, and South America.

## Family ASILIDÆ.

## PROCTACANTHUS RUFIVENTRIS Macquart.

A female specimen captured at Arroyo in February. The species was originally described from Santo Domingo, and has already been reported from Puerto Rico by Mr. V. von Roeder.

## Family BOMBYLIIDÆ.

## HYPERALONIA SERVILLEI Macquart.

Eleven specimens, Mayaguez and Aguadilla in January, and Fajardo, Arroyo, and Vieques Island in February. Specimens are also in the U. S. National Museum from Nassau, Bahama Islands, collected by Dr. H. G. Dyar.

## ANTHRAX GORGÓN Fabricius.

Seven specimens, captured at Mayaguez and Aguadilla in January, and Vieques Island and Fajardo in February. The species was originally described from the West Indies, and has been reported from Puerto Rico by Mr. von Roeder.

## Family EMPIDÆ.

## EUHYBUS SUBJECTUS Walker.

A single specimen, collected at Utuado in January. This species is also found in the eastern portion of the United States, ranging from the White Mountains, New Hampshire, to the southern part of Florida.

## TACHYDROMIA FLAVIDA Williston.

Three specimens, captured at Aguadilla in January, and Fajardo in February. The species was originally described from St. Vincent, West Indies, and was placed by Dr. Williston in the genus *Drapetis*. It is, however, a true *Tachydromia*, having the front femora considerably thickened, as stated in the original description.<sup>1</sup>

## Family DOLICHOPODIDÆ.

## PARACLIUS FILIFERUS Aldrich.

Three specimens, captured on Vieques Island in February. The species was originally described from St. Vincent, West Indies.

## PELASTONEURUS FASCIATUS Roeder.

Five specimens, from Arroyo, Vieques Island, and Fajardo in February. The type locality of this species is Puerto Rico.

<sup>1</sup> In Williston's table of the species of *Drapetis* collected in St. Vincent two serious errors occur. For *xanthopoda* read *flavidus*, and for *flavipes* read *xanthopodus*. The table is published in Trans. Ent. Soc. London for 1896, p. 441.

## PSILOPUS LONGICORNIS Fabricius.

A single specimen, collected at Fajardo in February. The species was originally described from the West Indies.

## PSILOPUS PORTORICENSIS? Macquart.

Five specimens, from Mayaguez and Aguadilla in January, and Arroyo and Vieques Island in February. They agree very well with the short description, which was based on a specimen from Puerto Rico, except that the antennal arista is wholly bare.

## SYNTORMON BARBATUS Loew.

Utuaado, in January. A single specimen of this species, originally described from the Middle States.

## CHRYSOTUS PALLIPES Loew.

Thirty-two specimens, from Utuaado, Aguadilla, Bayamon, and Mayaguez in January, and Arroyo, Fajardo, Vieques Island, and Culebra Island in February. Originally described from the Middle States, Dr. Schiner has recorded it from South America, and it is among the species reported by von Roeder from Puerto Rico.

## Family SYRPHIDÆ.

## BACCHA CLAVATA Fabricius.

Four specimens, collected at Aguadilla and Mayaguez in January, and Fajardo and Arroyo in February. Originally described from South America, this species is at present known to have a very wide range, extending from Nebraska on the north to Buenos Ayres, Argentina, on the south, and including the West Indian and neighboring islands. Von Roeder has already reported it from Puerto Rico.

## BACCHA species.

Two specimens were bred from larvæ feeding upon *Dactylopius citri* on Culebra Island in February; they represent a species distinct from the above, but are too immature to admit of a positive identification.

## OCYPTAMUS LATIUSCULA Loew.

A single specimen, collected at Fajardo in February. This species was originally described from Cuba, and has also been reported from Jamaica and Santo Domingo. Von Roeder has already recorded it from Puerto Rico.

## ERISTALIS VINETORUM Fabricius.

Seven specimens, collected at Mayaguez and Aguadilla in January, and Arroyo in February. This species was originally described from Brazil, and is now reported as occurring over nearly the entire eastern

half of the United States, the whole of Mexico, Central and South America, and the West Indies. It was previously reported from Puerto Rico by von Roeder.

ERISTALIS ALBIFRONS Wiedemann.

A single specimen, collected at Arroyo in February. This species was also originally described from Brazil, and has practically the same distribution as the preceding species.

MESOGRAMMA LACINIOSA Loew.

A single specimen from Utuado in January. The type locality of this species is Cuba, but it is also reported from St. Vincent, West Indies, and von Roeder has recorded its occurrence in Puerto Rico.

MESOGRAMMA ARCIFERA Loew.

Twelve specimens collected at Mayaguez and Aguadilla in January, and Vieques Island, Culebra Island, Arroyo, and Fajardo in February. This species was also originally described from Cuba, and has been reported by Mr. C. W. Johnson as occurring in Jamaica.

MESOGRAMMA SUBANNULATA Loew.

Eighteen specimens from Utuado and Aguadilla in January, and Vieques Island, Fajardo, and Arroyo in February. Originally described from Cuba, and Mr. Johnson has reported it from Jamaica. *Mesograptæ? cuprina* Bigot, also described from Cuba, is a synonym.

Family PHORIDÆ.

PHORA AUREA Aldrich.

Five specimens, taken at Mayaguez and Bayamon in January, and Arroyo in February. This species was originally reported from St. Vincent, West Indies.

Family TACHINIDÆ.

ARCHYTAS BASIFULVA Walker.

A single specimen captured on Vieques Island in February. The type locality of this species is Jamaica, West Indies.

EUPHOROCERA CLARIPENNIS Macquart.

Three specimens, bred February 10, from cocoons of *Megalopyge krugii* Dewitz, collected at San Juan. This Tachinid is found in all parts of the United States, but has not heretofore been reported as occurring outside of this country.

BELVOSIA LUTEOLA, new species.

Female: Head yellow, the occiput, except the lower portion and a semicircular spot in the middle of the upper edge, black, gray pruinose;



frontal vitta opaque, orange yellow; sides of front polished, except the lower outer angles, which are golden yellow pruinose; frontal bristles descending slightly below the arista; face and cheeks silvery white pruinose; sides of face bearing a triangular patch of short white bristly hairs, extending nearly one-third of distance from the lowest frontal bristle to the oral margin; antennæ reaching six-sevenths of distance to the oral margin, black, the first two joints reddish yellow, the third about five times as long as the second, arista thickened almost to its apex, the penultimate joint slightly longer than broad; palpi yellow, proboscis brownish black. Thorax black, gray pruinose, marked with four black vittæ, bearing four pairs of postsutural dorso-central macrochætæ and four sternopleural; scutellum brown, the margin yellowish. Abdomen yellow, the base of the first segment, a dorsal vitta, and the posterior margin of the third segment black; the fourth segment and bases of the two preceding yellowish pruinose, the macrochætæ only marginal. Legs black. Wings blackish, the anterior basal portion subhyaline, tinged in places with yellowish, the third vein bearing two or three bristles near the base; calypteres white. Length, 11 mm. A single specimen taken on Vieques Island in February.

*Type*.—Cat. No. 4373, U.S.N.M.

HYPOSTENA VANDERWULPII Townsend.

A single specimen captured on Vieques Island in February. The species was originally reported from Florida, but also occurs in southern California.

Family DEXIDÆ.

MYOCERA RUFIANALIS van der Wulp.

A single specimen, from Culebra Island in February. The species was originally described from Mexico, but also occurs in Jamaica, West Indies.

Family SARCOPHAGIDÆ.

SARCOPHAGA OCCIDUA Fabricius.

Fifty-five specimens, collected at Mayaguez, Bayamon, Utuado, and Aguadilla in January; and Vieques Island, Arroyo, and Fajardo in February. The species was originally described from the West Indies.

SARCOPHAGA PLINTHOPYGA Wiedemann.

Twenty-eight specimens, from Aguadilla, Utuado, and Mayaguez in January, and Vieques Island, Culebra Island, and Fajardo in February. This species was originally described from St. Thomas, West Indies, and has been reported from Jamaica by Mr. Johnson and from Puerto Rico by von Roeder.

SARCOPHAGA LAMBENS Wiedemann.

Five specimens, from Vieques Island and Culebra Island in February. Originally described from St. Paul, Brazil, and the West Indies, it has already been reported from Puerto Rico by Mr. von Roeder.

## SARCOPHAGA DIVERSIPES, new species.

Female: Black, the first two antennal joints, palpi, trochanters, broad apices of the femora, and the genitalia yellow; frontal vitta dark brown, sides of front golden yellow pruinose, changing to gray at the vertex, one pair of orbital bristles, no ocellar bristles, frontals descending almost to apex of the first antennal joint, middle of face gray pruinose, the sides and upper part of the cheeks golden yellow, remaining portion of the cheeks brownish, sides of face each bearing a row of short, scarcely perceptible, bristly hairs, antennæ nearly reaching the oral margin, the third joint slightly over twice as long as the second, arista long-plumose on the basal three-fourths; thorax gray pruinose, marked with three broad black vitta, a black streak in front of the insertion of each wing and a second near the center of the pleura; three pairs of large postsutural dorso-central macrochætæ, one pair of acrostichals, and two sterno-pleurals; scutellum gray pruinose, the middle third black; abdomen opaque, gray pruinose, three vittæ and the hind margin of each of the first four segments black, the two outermost vittæ being composed of triangular black spots; wings hyaline, the third vein bristly about one-third of distance from its base to the small crossvein; calypteres white. Length, 6 mm. Fajardo, in February. Two specimens.

*Type*.—Cat. No. 4374, U.S.N.M.

## HELICOBIA HELICIS Townsend.

Seven specimens, collected at Bayamon in January, and Fajardo, Arroyo, and Vieques Island in February. This species is distributed over nearly the whole of the United States.

## HELICOBIA species.

A single specimen, from Culebra Island in February.

## Family CALLIPHORIDÆ.

## CHRYSOMYIA MACELLARIA Fabricius.

Two specimens, taken at Mayaguez in January, and Culebra Island in February. The known range of this species is from Ohio southward through Mexico, Central America, the West Indies, and over the greater portion of South America.

## LUCILIA CÆSAR Linnæus.

One specimen, collected at Fajardo in February. A European species, which is now distributed over the greater portion of the warmer part of this globe.

## Family MUSCIDÆ.

## MUSCA DOMESTICA Linnæus.

A single specimen of this cosmopolitan species was captured on Culebra Island in February.

## STOMOXYS CALCITRANS Linnæus.

A single specimen, captured on Vieques Island in February. This species has nearly the same distribution as *L. cesar*.

## PYRELLIA OCHRICORNIS Wiedemann.

Nine specimens, taken on Culebra Island in February. The species was originally described from Brazil, but has also been reported from Cuba and Puerto Rico.

## MUSCINA TRIPUNCTATA van der Wulp.

A single specimen from Culebra Island in February. The species was originally described from Mexico.

## LIMNOPHORA ARCUATA Stein.

Three specimens, captured at Mayaguez in January, and Culebra Island and Arroyo in February. The type locality of this species is Georgia, and I have seen specimens collected in the District of Columbia.

## LISPA RUFITIBIALIS Macquart.

Three specimens, taken at Fajardo and Vieques island in February. The species was originally described from South America.

## CENOSIA VARICORNIS, new species.

Male and female: Black, the third antennal joint of the male, except its base, the extreme apices of the femora, whole of tibiæ, base of tarsi and halteres, yellow; an elongate triangular spot below the ocelli, dark-gray pruinose, sides of front gray pruinose, the face, cheeks, third joint of antennæ, except its base, and the upper edge of the second joint, whitish pruinose; antennæ two-thirds as long as the face, the third joint one and one-third times as long as the second, its lower front corner produced in the form of a sharp tooth; arista short plumose, the longest hairs only slightly longer than its greatest diameter; thorax gray pruinose, marked with five blackish-brown vittæ, the medio-dorsal and lateral ones broad, the former almost crossing the scutellum, the remaining pair narrow and interrupted, rarely wanting; two pairs of postsutural dorsocentral macrochætæ, the bristly hairs between them arranged in two rows; abdomen gray pruinose, a pair of suborbicular blackish spots on the posterior part of the first three segments, those on the second and third the most distinct and each bearing a macrochæta on its anterior part; a blackish-brown interrupted



medio-dorsal vitta, reduced in the female to a dot on the second and third segments; fourth segment bearing a discal and a marginal row of macrochætæ; front tibiæ each bearing a single macrochæta, situated near the middle of the posterior side, middle tibiæ each with a pair near the middle; hind tibiæ each with a circle of four near the middle, besides those at the apices; wings hyaline, unmarked; calypteres white. Length, 4 to 5 mm. Bayamon, Aguadilla, and Utuado in January, and Vieques Island, Fajardo, and Arroyo in February. Ten males and two females.

*Type*.—Cat. No. 4375, U.S.N.M.

### Family SCATOPHAGIDÆ.

#### SCATOPHAGA EXOTICA Wiedemann.

Four specimens, collected on Culebra Island in February. This species was originally described from New Orleans, Louisiana.

### Family MICROPEZIDÆ.

#### CALOBATA FASCIATA Fabricius.

Eight specimens, captured with the preceding. It has been reported from Jamaica, Puerto Rico, and Florida.

#### CALOBATA LASCIVA Fabricius.

Six specimens, from Mayaguez in January, and Fajardo and Vieques Island in February. This species was originally described from Cayenne, French Guiana, and has been reported from Puerto Rico, Cuba, Jamaica, Florida, New York, and Mexico, while the U. S. National Museum contains specimens from Georgia, South Carolina, Louisiana, California, and Brazil. Macquart has also recorded it from Philadelphia, Pennsylvania, Java, and Australia, but it is very doubtful that this species occurs in either of the two last-named localities. *Calobata lunulata* of van der Wulp<sup>1</sup> is a synonym, as that author suspected it might be.

#### MICROPEZA LIMBATA Roeder.

A single specimen collected at Mayaguez in January. The species was originally described from Puerto Rico.

### Family ORTALIDÆ.

#### EUXESTA THOMÆ Loew.

Fifteen specimens, collected at Bayamon, Mayaguez, and Aguadilla in January, and Arroyo and Vieques Island in February. The type locality is St. Thomas, West Indies.

<sup>1</sup> Biol. Cent.-Am., II, p. 372.

## EUXESTA STIGMATIAS Loew.

Three specimens, from Mayaguez and Aguadilla in January, and Vieques Island in February. This species was originally described from specimens collected in Cuba and Brazil, and has been reported from Puerto Rico and St. Vincent Island.

## EUXESTA SPOLIATA Loew.

Two specimens, from Aguadilla in January, and Fajardo in February. It was originally described from Cuba, and von Roeder has already reported its occurrence in Puerto Rico.

## EUXESTA APICALIS Williston.

A single specimen, captured at Utuado in January. The type locality is St. Vincent, West Indies.

## Family TRYPETIDÆ.

## ACIURA INSECTA Loew.

Twenty-one specimens, from Aguadilla, Mayaguez, and Utuado in January, and Fajardo in February. Originally described from Cuba, this species has been reported from Puerto Rico, Haiti, Jamaica, Florida, Colombia, and Brazil.

## TEPHRITIS PEREGRINA Loew.

Thirteen specimens, collected at Aguadilla and Mayaguez in January, and Vieques Island in February. Originally described from Brazil, it has also been reported from St. Vincent, West Indies.

## Family SAPROMYZIDÆ.

## PHYSEGENUA OBSCURIPENNIS Bigot.

Thirteen specimens, from Utuado, Mayaguez, and Aguadilla in January. Originally described from Cuba, it has been reported from Puerto Rico, Jamaica, and South America. Von Roeder has already published the fact that *Lauzania variegata* Loew, also described from Cuba, is a synonym of the present species.

## SAPROMYZA SORDIDA Wiedemann.

A single specimen, collected at Aguadilla in January. This species was originally described from the West Indies, and the U. S. National Museum contains specimens which were collected in Florida and Georgia.

## LONCHÆA LONGICORNIS Williston.

A single specimen, captured at Utuado in January. Originally described from St. Vincent, West Indies.

## Family SEPSIDÆ.

## SEPSIS INSULARIS Williston.

Twenty-eight specimens, collected at Aguadilla, Mayaguez, Bayamon, and Utuado in January and Fajardo and Vieques Island in February. The species was originally described from St. Vincent, West Indies.

## Family EPHYDRIDÆ.

## NOTIPHILA VIRGATA, new species.

Male: Black, the greater part of the antennæ, palpi, apex of proboscis, halteres, and middle and hind tibiæ and their tarsi, yellow, the front tibiæ and tarsi, brown, their bases sometimes yellowish, the other tibiæ changing into brownish toward their apices; front opaque, yellowish gray pruinose, a black spot between the ocelli, extending downward about halfway to lower edge of the front, and a short distance on either side of this spot is a black vitta which extends across the front and is greatly dilated at its lower end; face yellow pruinose, bearing one or two lateral pairs of macrochetæ on the lower part; thorax opaque, gray pruinose, mesonotum marked with five black vittæ, all, with the exception of the outer pair, extending entirely across it, the median one posteriorly forked, each fork uniting with the adjacent vitta, the outer pair of vittæ considerably abbreviated anteriorly; a brown vitta on the upper part of the pleura and two converging ones almost crossing the scutellum; abdomen opaque, gray pruinose, a pair of large black spots on the front part of segments 2, 3, and 5, each spot at its inner side crossing the segment, the pair on segment 5 slightly polished; the gray portions are marked with several black dots; fourth segment marked with a transverse row of four black, triangular spots besides several black dots; wings grayish hyaline. Length, 3.5 mm. Six male specimens, taken at Utuado and Bayamon in January, and Arroyo and Vieques Island in February.

*Type*.—Cat. No. 4376, U.S.N.M.

## PARALIMNA DECIPIENS Loew.

Three specimens, collected at Utuado and Mayaguez in January. This species was originally described from Texas, and it also occurs in Georgia and Florida.

## PARALIMNA OBSCURA Williston.

Two specimens, taken at Bayamon in January and Fajardo in February. Originally described from St. Vincent, West Indies, it has also been reported from Brazil.

## ILYTHEA OSCITANS Walker.

A single specimen, captured at Utuado in January. This species was originally described from the United States, without any mention of the exact locality. I have examined a specimen captured in Massachusetts, forming a part of Dr. Garry de N. Hough's collection.

## ILYTHEA FLAVIPES Williston.

Four specimens, captured at Utuado and Bayamon in January. It was originally described from St. Vincent, West Indies, and has also been reported from Rio Janeiro, Brazil.

## ATHYROGLOSSA NITIDA Williston.

Three specimens, taken at Fajardo and Vieques Island in February. This species was also originally described from St. Vincent.

## PSILOPA ACICULATA Loew.

Forty-seven specimens, collected at Utuado, Mayaguez, Bayamon, and Aguadilla in January, and Arroyo, Fajardo, and Vieques Island in February. Originally described from Cuba, it has also been reported from St. Vincent and Grenada islands, and from Rio Janeiro, Brazil. I have studied specimens collected in Georgia and Louisiana, forming part of the collection of Dr. Hough.

## PSILOPA NIGRIMANA Williston.

Four specimens, collected at Utuado and Bayamon in January. Originally described from St. Vincent, West Indies, it has also been reported from Brazil.

## PSILOPA MELLIPES, new species.

Male and female: Body and head polished, black or bronze green; in the latter case usually with a strong violaceous tinge; antennæ brown, elongated, the third joint from two to almost three times as long as wide; a single macrochaeta near each lower corner of the face; proboscis brown, the apex yellow, palpi brown; thorax bearing a single pair of dorso-central macrochaetae; fourth segment of abdomen the longest—about twice as long as the fifth in the male, but only one and one-fourth times in the female; halteres and legs, including the coxæ, yellow; wings hyaline; apex of second vein midway between apices of the first and third veins. Length, 1 to 1.5 mm. Four specimens. collected at Utuado in January and Arroyo in February.

*Type*.—Cat. No. 4377, U.S.N.M.

## ALLOTTRICHOMA ABDOMINALIS Williston.

A single specimen, taken at Utuado in January. It was originally described from St. Vincent, West Indies, and has also been reported from Brazil.

## DISCOCERINA PARVA Loew.

Six specimens, taken at Aguadilla in January and Arroyo and Vieques Island in February. This species was originally described from the District of Columbia, and the U. S. National Museum contains a specimen captured at Lake Worth, Florida, by Mrs. A. T. Slosson.

## DISCOCERINA LEUCOPROCTA Loew.

Eleven specimens, from Utuado, Mayaguez, and Aguadilla in January and Arroyo, Fajardo, and Vieques Island in February. It was originally described from Maryland.

## HYDRELLIA GILVIPES, new species.

Male: Black, the greater part of the antennæ, median vitta on the face, the cheeks, palpi, and legs, including the front tarsi, yellow, knob of the halteres whitish; front opaque, dark gray pruinose, the lower corners brown; face and cheeks yellowish-gray pruinose; a row of about seven short bristles extending from the lower part of the face to the occiput, crossing the cheek near the eye; third joint of antennæ oval, only slightly longer than broad; thorax and scutellum opaque, grayish-brown pruinose, that on the pleura light gray; two pairs of dorso-central macrochætæ, no bristly hairs between them; abdomen polished, the center of the second segment and posterior margin of the third yellowish gray pruinose; fourth segment longer than any of the others, about one and one-third times as long as the fifth; wings yellowish hyaline, the apex of the second vein nearly midway between the apices of the first and third veins. Length, 1.2 mm. A single specimen, collected at Bayamon in January.

*Type*.—Cat. No. 4378, U.S.N.M.

## PTILOMYIA, new genus.

Second joint of antennæ bearing a short, forwardly directed macrochætæ at its anterior upper angle, the third joint shorter than broad, rounded at the apex, arista bearing about six long bristles on the upper side and with about three shorter ones on the lower side; front slightly contracted at the lower end, two pairs of vertical bristles and two fronto-orbitals, the upper pair of the latter directed backward, the lower one forward, ocellar bristles located higher than the lowest ocellus; no postvertical bristles, front destitute of bristles other than those above mentioned; head in profile forming nearly an equilateral, acute-angled triangle, face convex, not retreating at the oral margin, bearing a transverse row of about six macrochætæ a short distance above the oral margin and with two on each side of the face near the middle; cheeks about one-tenth as wide as the eyeheight, each bearing a stout macrochætæ near its center, clypeus hidden, mouth opening very large, proboscis excessively large, enlarging outwardly, palpi slender and nearly linear; eyes bare; auxiliary vein obsolete apically, second basal



cell united with the discal, anal cell wanting, costal vein extending beyond the apex of the fourth vein; legs destitute of stout macrochaetae. Type, the following species:

*PTILOMYIA ENIGMA*, new species.

Female: Black, the lower side of the third antennal joint and bases of tarsi yellow, halteres yellowish white; head, thorax, and scutellum opaque, dark-gray pruinose, abdomen slightly polished, very thinly brownish pruinose, ovate, composed of six segments, the first and sixth very short, the others subequal in length, each about three times as long as the sixth; wings whitish hyaline, first vein extending slightly beyond the small crossvein, apex of second vein slightly nearer to apex of first than to tip of third vein, first posterior cell slightly widening toward its apex, last section of the fourth vein nearly one and one-half times as long as the penultimate section, hind crossvein slightly shorter than the last section of the fifth vein. Length, 0.9 mm. A single specimen, collected at Bayamon in January.

*Type*.—Cat. No. 4379, U.S.N.M.

Family DROSOPHILIDÆ.

*STENOMICRA*, new genus.

Wings narrow, oblanceolate, the alulae wanting, the posterior margin of the wing convex from base to apex, first vein reaching only to the branching of the second and third veins, small crossvein midway between this branching and the hind crossvein, the latter about eight times its own length from the apex of the fifth vein, penultimate section of the fourth vein about one-eighth as long as the last section, first posterior cell narrowed at its apex, second basal cell united with the discal, anal cell present, tip of second vein nearly midway between the apices of the first and third veins, costal vein prolonged beyond the apex of the fourth vein; ocelli situated near the center of the front, two pairs of vertical bristles and one fronto-orbital, the latter situated below the middle of the orbits, no ocellar nor postvertical bristles; second joint of antennae bearing a short, forwardly directed macrochaeta near the upper outer corner, the third joint broader than long, rounded at the apex, arista bearing several long bristles on the upper side and with a few shorter ones on the lower side; face in profile slightly concave, projecting forward at the oral margin, vibrissae distinct; mesonotum destitute of short bristly hairs, bearing two pairs of dorsocentral macrochaetae, scutellum with a single pair; tibiae destitute of a pre-apical bristle. Type, the following species:

*STENOMICRA ANGUSTATA*, new species.

Head and its members yellow, the front and occiput opaque, thinly whitish pruinose, an ocellar dot black; mesonotum and scutellum

brown, opaque, densely whitish pruinose; pleura, halteres, legs, and abdomen yellow, the latter in the female brownish at each end, in the male brown on the third and fourth segments; wings hyaline. Length, 1 mm. Two specimens, collected at Bayamon and Utuado in January.

*Type*.—Cat. No. 4380, U.S.N.M.

CLADOCHÆTA, new genus.

Antennæ projecting obliquely forward and downward, nearly perpendicular, almost as long as the face, the second joint bearing a nearly erect macrochæta at the middle of the upper side and with a smaller, forwardly directed one at the anterior upper angle; third joint scarcely longer than the second, as wide as long, the arista inserted near its base, bare, near the base of the upper side bearing a single bristle which is almost half as long as the arista proper; front bearing two pairs of vertical bristles, one pair of postvertical and one of ocellar, two pairs of orbital bristles, placed one behind the other, the lower pair only slightly below the middle of the front and directed forward, the other pair directed outward and backward, a very small backwardly directed one between the lower one and the eye; on each side of the middle of the lower half of the front are four or five pairs of short bristles directed inward; head at lower part longer than at insertion of antennæ; face in profile strongly concave, vibrissæ well developed; eyes nearly bare, slightly higher than long; cheeks about one-ninth as wide as height of eye, proboscis short, very robust, palpi clavate; legs rather short and slender, nearly bare, each tibia bearing an erect preapical bristle on the outer side, front femora bearing a row of bristles on the upper and under sides; auxiliary vein becoming obsolete beyond its middle, first vein scarcely reaching beyond the first fifth of the length of the wing, apex of second vein over twice as far from the apex of the first vein as from the tip of the third, the latter at the extreme wing-tip, fourth vein outwardly diverging from the third, hind cross-vein slightly more than its own length from the apex of the fifth vein, small crossvein slightly before the middle of the discal cell and far beyond the apex of the first vein, penultimate section of the fourth vein only slightly more than half as long as the last section, second basal cell united with the discal, anal cell present, the sixth vein not prolonged beyond the apex of the latter. *Type*, the following species:

CLADOCHAETA NEBULOSA, new species.

Male and female: Head opaque, yellow, the front, except the orbits, brownish yellow, ocellar dot brown, eyes brownish red, antennæ brown, the first two joints yellow, palpi and proboscis yellow; thorax dark yellow, subopaque, thinly gray pruinose, two pairs of dorsocentral macrochætæ, the bristly hairs between them numerous and not distinctly arranged in rows; three pairs of supra-alar bristles, one præ-sutural, two posthumeral, one humeral, and two sternoplural; scutellum dark yellow, the margin lighter, bare except for the four marginal

macrochaetae; abdomen reddish brown, somewhat polished; wings grayish, the costal margin to a little beyond the third vein smoky brown, darkest in apex of the marginal cell, both crossveins clouded with brown; the costal vein extends to the apex of the fourth vein; legs and halteres pale yellow. Length, 1 to 1.2 mm. One male and four females collected at Bayamon, Mayaguez, and Aguadilla in January, and Arroyo and Vieques Island in February. Also, a single specimen collected at Motzorongo, Mexico, in January, 1892, by Prof. Herbert Osborn.

*Type*.—Cat. No. 4381, U.S.N.M.

#### DROSOPHILA FUNEBRIS Fallen.

Eleven specimens, captured at Bayamon, Mayaguez, and Utuado in January. A European species, which also occurs over the greater portion of the United States.

#### DROSOPHILA VITTATA Coquillett.

A single specimen, captured at Arroyo in February. The type locality of this species is Charlotte Harbor, Florida.

#### DROSOPHILA FUSCA, new species.

Brown, the halteres and legs, including the coxæ, yellow; front slightly polished, destitute of short hairs, not pruinose, two pairs of orbital bristles, one placed in front of the other; body noticeably polished, not pruinose, two pairs of dorsocentral macrochaetae, the short bristly hairs between them not disposed in rows; wings hyaline, apex of second vein nearly twice as far from the apex of the first as from that of the third vein; last section of the fourth vein almost twice as long as the preceding section; last section of fifth vein two-thirds as long as the penultimate section of the fourth; costal vein prolonged to the apex of the fourth vein. Length, 1 mm. A single specimen, collected at Utuado in January.

*Type*.—Cat. No. 4382, U.S.N.M.

### Family GEOMYZIDÆ.

#### ANTHOMYZA NIGRIMANA, new species.

Frontal triangle polished black, reaching almost to the lower end of the front and filling the space between the frontal orbits, the latter, on the upper portion to the single pair of fronto-orbital bristles, polished black, remainder of front opaque, brown, the lower corners yellow; face less than one-fourth as broad as the front at its middle, yellow; first two joints of antennæ brownish yellow, the third yellowish white, arista brown, greatly thickened at the base, rather densely and long plumose; proboscis yellow, palpi brown, occiput and body polished black; legs, including the coxæ, yellow, the front tibiæ and first three joints of their

tarsi black; wings hyaline, halteres whitish, the knobs longer than the stems. Length, 1.2 mm. Three specimens, collected at Utuado and Mayaguez in January.

*Type*.—Cat. No. 4383, U.S.N.M.

### Family OSCINIDÆ.

#### GAURAX LANCIFER, new species.

Yellow, the antennal arista, an ocellar dot, a somewhat lanceolate spot on the posterior half of the mesonotum, an oval spot on the posterior lower corner of the mesopleura, usually one on the lower part of the pteropleura, and the dorsum of the abdomen except at its base, black; mesonotum polished, marked with three reddish-yellow vittæ, scutellum in outline nearly triangular; wings hyaline. Length, 1.5 to 2 mm. Eight specimens were bred in February from larvæ infesting the egg-sacs of a spider at San Juan. Also, five specimens, bred by Mr. H. G. Hubbard, March 16, 1894, from larvæ infesting the egg-sacs of a spider at Montserrat, West Indies.

*Type*.—Cat. No. 4384, U.S.N.M.

#### HIPPELATES CONVEXUS Loew.

Thirty-four specimens, collected at Mayaguez, Bayamon, Utuado, and Aguadilla in January, and Fajardo, Arroyo, and Vieques Island in February. The species was originally described from Cuba, but also occurs in the southern portion of the United States and in Mexico. Three specimens from the last-named country were collected April 10, 1898, by Dr. L. O. Howard, at San Jose de Guaymas.

#### HIPPELATES PUSIO Loew.

Eighteen specimens, from Mayaguez, Bayamon, and Aguadilla in January, and Fajardo and Arroyo in February. It was originally described from Texas, but ranges as far northward as New Bedford, Massachusetts.

#### HIPPELATES FLAVIPES Loew.

Five specimens, from Fajardo and Vieques Island in February. The species was originally described from Cuba, but occurs in this country as far northward as Franconia, New Hampshire; this appears to be the most northern limit of any species belonging to the present genus. The specimens from St. Vincent, West Indies, which Dr. Williston refers to *H. flavipes*, evidently belong to some other species, since *flavipes* belongs to his own subgenus *Siphomyia*, whereas he referred his specimens to *Hippelates* as restricted.

#### HIPPELATES TENER, new species.

Head reddish yellow, the sides of the vertex brown, the occiput, except the lower portion, black; frontal triangle polished dark brown, widely



separated from the eyes and reaching about to the middle of the front, rounded below, front outside of the triangle sparsely covered with bristly hairs; antennæ yellow, upper edge and apex of the third joint black, arista dark brown; palpi and proboscis yellow, apical portion of the latter black, labella slender; folded back; mesonotum dark brown, somewhat polished, but sparsely covered with an appressed yellowish tomentum, one pair of small dorsocentral macrochætæ, the bristly hairs not arranged in rows; pleura reddish yellow, a brown spot on the sternopleura and another above the hind coxæ; scutellum yellow, metanotum and abdomen polished brown; legs yellow and brownish, bases of tarsi yellow; wings hyaline; halteres yellowish white. Length, 1.5 mm. Six specimens, collected at Utuado in January, and Fajardo in February.

*Type*.—Cat. No. 4385, U.S.N.M.

OSCINIS ANONYMA Williston.

Forty-nine specimens, collected at Mayaguez, Bayamon, Utuado, and Aguadilla in January, and Fajardo, Arroyo, and Vieques Island in February. Originally described from St. Vincent, West Indies.

OSCINIS VIRGATA Coquillett.

Seven specimens, from Bayamon, Utuado, and Aguadilla in January, and Vieques Island in February. The species was originally described from Colorado.

OSCINIS QUADRILINEATA Williston.

Three specimens, taken at Bayamon and Mayaguez in January, and Fajardo in February. Originally described from St. Vincent, West Indies.

OSCINIS OBSCURA, new species.

Black, the labella, halteres, under side of the abdomen, apices of femora, front and middle tibiæ, both ends of the hind ones, and the tarsi except at their apices, yellow; base of abdomen sometimes yellowish; frontal triangle polished, almost touching the eyes at the vertex, reaching the lowest third of the front; labella slender, pointed, folded back; mesonotum and scutellum somewhat opaque, thinly brownish pruinose, no dorsocentral macrochætæ, pleura and abdomen polished; wings hyaline, apex of the second vein midway between the apices of the first and third. Length, 1 to 1.5 mm. Seventeen specimens, collected at Mayaguez, Bayamon, and Utuado in January, and Vieques Island in February.

*Type*.—Cat. No. 4386, U.S.N.M.

OSCINIS COXENDIX Fitch.

Ten specimens, from Mayaguez, Bayamon, and Utuado in January, and Fajardo in February. This species also occurs from New Hampshire to Florida, and westward to Colorado.



## OSCINIS NANA Williston.

Nine specimens, collected at Mayaguez, Utuado, and Aguadilla in January, and Arroyo and Vieques Island in February. Originally described from St. Vincent, West Indies.

## OSCINIS UMBROSA Loew.

Nine specimens, taken at Mayaguez, Bayamon, Utuado, and Aguadilla in January. This species was originally described from Pennsylvania, and the U. S. National Museum contains specimens collected in the District of Columbia and Indiana.

## CHLOROPS TRIVITTATA Williston.

A single specimen, captured at Arroyo in February. The species was originally reported from St. Vincent, West Indies.

## SIGALOESSA BICOLOR Loew.

One specimen, taken at Fajardo in February. The type locality of this species is Cuba.

## Family AGROMYZIDÆ.

## DESMOMETOPA HALTERALIS, new species.

Black, the bases of the tarsi yellow, a yellow spot between the antennæ and a densely gray pruinose one on the lower edge of the face; front wholly polished, proboscis slender, horny, the labella nearly as long as the proboscis proper and folded back; thorax and scutellum polished, two pairs of dorsocentral macrochaetæ; abdomen subopaque, the sides and the fifth and following segments polished; wings white, costal and first veins yellow, the others white, first posterior cell narrowed at its apex. Length, 2 to 2.5 mm. A single specimen captured at Utuado in January; also seven specimens, collected at New Bedford, Massachusetts (Dr. Garry de N. Hough), Lake Worth, Florida (Mrs. A. T. Slosson), New Mexico (Prof. T. D. A. Cockerell), and Colorado (Mr. Carl F. Baker).

*Type*.—Cat. No. 4387, U.S.N.M.

## AGROMYZA ÆNEIVENTRIS Fallen.

Nine specimens, collected at Utuado, Bayamon, Aguadilla, and Mayaguez in January, and Fajardo in February. This is a European species which also occurs over the greater portion of the United States.

## AGROMYZA NEPTIS Loew.

Two specimens, from Aguadilla and Mayaguez in January. This species was originally described from Nebraska; the U. S. National Museum contains specimens from several other localities, ranging from Massachusetts to Florida and Texas.

## AGROMYZA SETOSA Loew.

A single specimen, captured at Utuado in January. This species was originally reported from the District of Columbia, but occurs over the greater portion of the United States.

## AGROMYZA JUCUNDA van der Wulp.

Two specimens, collected at Utuado and Mayaguez in January. Originally reported from Wisconsin, but now found in nearly every State in this country, and Williston reports it from St. Vincent, West Indies, describing it as a supposed new species under the name of *Agromyza lateralis*, new species. The latter name was used by Macquart for a European species as long ago as the year 1835.<sup>1</sup>

## AGROMYZA DIMINUTA Walker.

A single specimen, captured at Fajardo in February. This species was originally reported from the United States without mention of any more definite locality. It is found over the greater portion of our country.

## LOBIOPTERA INDECORA Loew.

A single specimen, collected on Vieques Island in February. Originally reported from Nebraska, it also occurs in the eastern part of this country, ranging from New Hampshire to Georgia.

## OPHTHALMOMYIA LACTEIPENNIS Loew.

One specimen, collected at Bayamon in January. The type locality of this species is Cuba, but specimens are in the U. S. National Museum which were collected at different points in this country, ranging from the District of Columbia to Florida, and westward to New Mexico; it has also been reported from St. Vincent, West Indies.

## OPHTHALMOMYIA CINEREA, new species.

Head black, opaque, gray pruinose, antennæ black, the lower portion of the base of the third joint yellowish, palpi yellow, proboscis black, the labella yellowish, rather robust, and only slightly prolonged; thorax and scutellum black, opaque, gray pruinose, mesonotum marked with five black vittæ, of which the median one is prolonged almost across the scutellum, bristly hairs of mesonotum arising from minute black dots, front end and lower portion of the pleura almost destitute of the gray pruinosity; abdomen subopaque, brownish black; legs brownish black, halteres light yellow, wings whitish, the costal and first veins yellowish, the others white. Length, 1.5 mm. A single specimen, collected at Bayamon in January. Although aberrant in its markings, this species possesses all of the important structural characters of the preceding.

*Type*.—Cat. No. 4388, U.S.N.M.

<sup>1</sup> Hist. Nat. des Ins., Dipt., II, p. 609.

## CERATOMYZA DORSALIS Loew.

Two specimens, collected at Arroyo and Vieques Island in February. This species was originally reported from the District of Columbia, but occurs over the greater portion of this country, extending as far westward as Colorado.

## LEUCOPIS BELLA Loew.

Three specimens, bred February 2, from larvæ preying upon *Dactylopius citri* on Culebra Island. Originally described from Cuba, but having a wide distribution, extending from Nova Scotia to California and Mexico.

## Family BORBORIDÆ.

## LIMOSINA FONTINALIS Fallen.

Nineteen specimens, from Bayamon, Utuado, and Mayaguez in January, and Arroyo and Fajardo in February. A European species, which also occurs in the District of Columbia and has been reported from Florida by Mr. C. W. Johnson.

## LIMOSINA VENALICIUS Osten Sacken.

Two specimens, collected at Utuado in January. This species was originally described from Cuba, but also occurs at Biscayne Bay, Florida, and has been reported from St. Vincent, West Indies, Brazil, and Africa. Osten Sacken referred it to the genus *Borborus*, in which genus it is retained by Williston, but it is a typical *Limosina*, as is also the *Borborus illotus* of Williston.

## LIMOSINA LUGUBRIS Williston.

Two specimens, taken at Aguadilla and Utuado in January. This species was originally reported from St. Vincent, West Indies.

## LIMOSINA PERPARVA Williston.

Three specimens, collected at Mayaguez and Utuado in January and Culebra Island in February. This species was also originally reported from St. Vincent.

## Family HIPPOBOSCIDÆ.

## ORNITHOMYIA ERYTHROCEPHALA Leach.

Eight specimens, captured on a sparrow hawk at Adjunctos in January; also a single specimen, collected at Culebra Island in February. This species was originally described from Brazil, but occurs over a large portion of the Western Continent, having been reported by Osten Sacken as occurring as far northward as Quebec, Canada.

## Family NYCTERIBIDÆ.

## TRICHOBIUS DUGESII Townsend.

Sixty-two specimens, collected on bats in a cave near Bayamon in January. The species was originally described from Mexico, and the U. S. National Museum contains specimens collected by Mr. H. F. Wickham at Tucson, Arizona, and by Mr. H. G. Hubbard near Kingston, Jamaica.

## ASPIDOPTERA BUSCKII Coquillett.

A single specimen representing this genus and species was collected with the preceding specimens.

## PTERELLIPSIS ARANEA Coquillett.

Twenty-three specimens, collected with the preceding. This species was originally reported from Jamaica and Montserrat, West Indies.